

From: [Wilson, Ashley](#)
To: [Wagner, Christine](#)
Cc: **Non-responsive based on revised scope** [Scurato, Jesse](#); [Van Reed, Paul](#)
Subject: Case# 47768, SDG# MC0X12 - Validated Data for Shiloh Church Road Site
Date: Friday, September 21, 2018 4:06:00 PM
Attachments: [47768 MC0X12 ltr.pdf](#)
[image001.png](#)
[47768 MC0X12 DVR.pdf](#)
[47768 MC0X12 SSR.pdf](#)
[EQUIS 1 47768 MC0X12 VAL.xls](#)
[EQUIS 2 47768 MC0X12 VAL.xls](#)
[EQUIS 3 47768 MC0X12 VAL.xls](#)
[EQUIS 47768 MC0X12 VAL.xls](#)

Christine Wagner
US EPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Christine,

Attached to this message you will find electronic files containing the validation report and validated data for Shiloh Church Road Site, Case# 47768, SDG# MC0X12. The validation of this case was completed by the Region III Environmental Services Assistance Team (ESAT).

Please contact ESAT's RPO, Brandon McDonald by phone at 410-305-2607 or e-mail at McDonald.Brandon@epa.gov if additional assistance is needed.

TO # 0002 TDF # 0818098



Ashley Wilson | Research Technician | 410-305-3013 | Wilson.Ashley@epa.gov
ICF | 701 Mapes Road, Fort Meade, MD 20755-5350

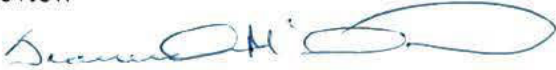


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: 9/21/2018

SUBJECT: Region III Data QA Review

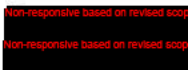
FROM: Brandon McDonald 
Region III ESAT RPO(3EA22)

TO: CHRIS WAGNER
Hazardous Site Cleanup Division (HSCD)

Attached is the data validation report for the SHILOH CHURCH ROAD SITE site for RAS# 47768; SDG# MC0X12 completed by the Region III Environmental Services Assistance Team (ESAT) contractor, ICF International, under the direction of Region III EAID.

If you have any questions regarding this review, please call Brandon McDonald at (410) 305-2607 or you can call Eric Graybill at (410)-305-2665.

Attachment

cc:  WESTON SOLUTIONS)
(WESTON SOLUTIONS)

TO: #0002 TDF: #0818098

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE



*Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.
Customer Service Hotline: 1-800-438-2474*



ICF
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3012

Date: August 28, 2018

To: Brandon McDonald
ESAT Region 3 Project Officer

From: [Redacted]
Validator

[Redacted]
Reviewer

Subject: Inorganic Data Validation (S4VEM)
Shiloh Church Road Site
47768 MC0X12

Overview

This data package consisted of five (5) water samples, analyzed for total metals by ICP-MS, with subsequent hardness by calculation, and for mercury (Hg) by cold vapor atomic absorption technique.

Analyses were performed by Bonner Analytical Testing Co. (BON) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.4.

Data were validated according to the National Functional Guidelines for Inorganic Superfund Methods Data Review and applicable USEPA Region 3 modifications. Electronic validation was performed by the Electronic Data eXchange & Evaluation System (EXES). The validation report has been assigned the Superfund Data Validation Level Stage_4_Validation_Electronic_Manual (S4VEM).

The following validation narrative is an evaluation of laboratory reported data based on the hardcopy data package received by Region 3 on August 16, 2018.

Summary

No significant data quality outliers or technical deficiencies were identified that would require rejection of sample results. Less significant data quality outliers resulting in estimation of sample results were identified including, but not limited to, laboratory duplicate Relative Percent Difference (RPD), serial dilution percent difference and blank contamination as detailed below.

Minor Problems

The RPD in the laboratory duplicate analysis was outside control limits of twenty (20) RPD or \pm Contract Required Quantitation Limit (CRQL) if results are less than 5X the CRQL for Co and Ni. Detected concentrations and quantitation limits for these analytes are estimated and have been qualified "J" and "UJ", respectively.

Percent differences (%Ds) in the ICP serial dilution analysis were outside the control limit (>10%) for calcium (Ca), Cu and Zn. Detected concentrations and quantitation limits for these analytes are estimated due to possible physical or chemical interferences in the sample matrix and have been qualified "J" and "UJ", respectively.

Laboratory instrumentation reported a negative value for Cr greater than the absolute value of the Method Detection Limit (MDL) in a blank analysis. Sample MC0AC1, which reported a concentration for Cr less than the CRQL, has been reported at the CRQL and qualified "UJ". Quantitation limits for Cr are estimated and have been qualified "UJ".

Due to estimated concentrations for Ca and Mg, calculations of hardness are also estimated and have been qualified "J" by the validator.

Notes

Aluminum (Al), antimony (Sb), beryllium (Be), cadmium (Cd), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), and magnesium (Mg) have been detected in laboratory blanks associated with the samples in this SDG. Samples which reported detected concentrations for these analytes less than the CRQL have been reported at the CRQL and qualified "U".

Analytes detected below CRQLs not attributed to blank contamination are estimated and have been qualified "J".

Matrix spike, Hg laboratory duplicate, and Laboratory Control Sample analyses were within control limits.

Percent relative intensities for internal standards in both collision cell and non-collision cell analyses were outside the upper control limit (>125%) in the initial analysis of the samples listed below. These samples were reanalyzed at two-fold (2X) dilutions with %RI within control limits for all internal standards. The associated analytes were reported from the diluted analyses, without qualification. Quantitation limits are elevated due to the dilutions.

Sample	Analysis	Internal standard(s)	Associated Analytes
MC0AB6	Collision cell	scandium, yttrium	Arsenic (As), chromium (Cr), iron (Fe), manganese (Mn), selenium (Se), vanadium (V)
MC0AC3	Collision cell	scandium	As, Cr, Fe, Mn, Se, V
MC0AB6	Non-collision cell	Yttrium	Cobalt (Co), copper (Cu), nickel (Ni), zinc (Zn)

Concentrations for the following target analytes exceeded the calibration range in the initial analysis for the samples listed below. These samples were reanalyzed at dilution in order to quantitate these analytes within the calibration range. Results were reported from the dilutions. There is no indication that these exceedance issues impacted subsequent sample analyses.

Sample	Analyte	Dilution
MC0AB6	Sodium (Na)	10X
MC0AC0	Cu	3X
	Hg	4X

Glossary of Inorganic Data Qualifier Codes

Validation Qualifiers	In order of descending precedence. Only one of these qualifiers may apply to any result.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit
B	The result is presumed a blank contaminant. This qualifier is used for drinking water samples only.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: LCS01 Method: Metals by ICP-MS Matrix: Water MA Number:
Sample Location: pH: Sample Date: Sample Time:
% Moisture: % Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike	40.6		ug/L	40.6		1	YES	S4VEM
Antimony	Spike	4.0		ug/L	4.0		1	YES	S4VEM
Arsenic	Spike	2.2		ug/L	2.2		1	YES	S4VEM
Barium	Spike	20.4		ug/L	20.4		1	YES	S4VEM
Beryllium	Spike	2.2		ug/L	2.2		1	YES	S4VEM
Cadmium	Spike	2.0		ug/L	2.0		1	YES	S4VEM
Calcium	Spike	993		ug/L	993		1	YES	S4VEM
Chromium	Spike	4.3		ug/L	4.3		1	YES	S4VEM
Cobalt	Spike	2.1		ug/L	2.1		1	YES	S4VEM
Copper	Spike	4.3		ug/L	4.3		1	YES	S4VEM
Iron	Spike	441		ug/L	441		1	YES	S4VEM
Lead	Spike	2.0		ug/L	2.0		1	YES	S4VEM
Magnesium	Spike	1040		ug/L	1040		1	YES	S4VEM
Manganese	Spike	2.2		ug/L	2.2		1	YES	S4VEM
Nickel	Spike	2.1		ug/L	2.1		1	YES	S4VEM
Potassium	Spike	1000		ug/L	1000		1	YES	S4VEM
Selenium	Spike	11.6		ug/L	11.6		1	YES	S4VEM
Silver	Spike	2.1		ug/L	2.1		1	YES	S4VEM
Sodium	Spike	987		ug/L	987		1	YES	S4VEM
Thallium	Spike	2.0		ug/L	2.0		1	YES	S4VEM
Vanadium	Spike	12.5		ug/L	12.5		1	YES	S4VEM
Zinc	Spike	4.1		ug/L	4.1		1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
---	--------------------------------	---

Sample Number: MC0AB6	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location: SCR	pH: 1.	Sample Date: 07/23/2018	Sample Time: 10:40:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.88		ug/L	0.88		1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AB6	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: SCR	pH: 1.	Sample Date: 07/23/2018	Sample Time: 10:40:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	10700		ug/L	10700		1	YES	S4VEM
Antimony	Target	61.9		ug/L	61.9		1	YES	S4VEM
Arsenic	Target	10.0		ug/L	10.0	D	2	YES	S4VEM
Barium	Target	151		ug/L	151		1	YES	S4VEM
Beryllium	Target	1.0	U	ug/L	0.50	J	1	YES	S4VEM
Cadmium	Target	6.8		ug/L	6.8		1	YES	S4VEM
Calcium	Target	7660	J	ug/L	7660	*	1	YES	S4VEM
Chromium	Target	44.7		ug/L	44.7	D	2	YES	S4VEM
Cobalt	Target	4.1	J	ug/L	4.1	D*	2	YES	S4VEM
Copper	Target	638	J	ug/L	638	D*	2	YES	S4VEM
Iron	Target	15700		ug/L	15700	D	2	YES	S4VEM
Lead	Target	739		ug/L	739		1	YES	S4VEM
Magnesium	Target	1240		ug/L	1240		1	YES	S4VEM
Manganese	Target	327		ug/L	327	D	2	YES	S4VEM
Nickel	Target	23.5	J	ug/L	23.5	D*	2	YES	S4VEM
Potassium	Target	4930		ug/L	4930		1	YES	S4VEM
Selenium	Target	1.4	J	ug/L	1.4	JD	2	YES	S4VEM
Silver	Target	0.77	J	ug/L	0.77	J	1	YES	S4VEM
Sodium	Target	705000		ug/L	705000	D	10	YES	S4VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Vanadium	Target	13.7		ug/L	13.7	D	2	YES	S4VEM
Zinc	Target	283	J	ug/L	283	D*	2	YES	S4VEM
Hardness	Derived	24.2	J	mg/L	24.2	*	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
---	--------------------------------	---

Sample Number: MC0AC0	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location: SCR	pH: 1.	Sample Date: 07/23/2018	Sample Time: 11:20:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	9.2		ug/L	9.2	D	4	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC0 Method: Metals by ICP-MS Matrix: Water MA Number:
Sample Location: SCR pH: 1. Sample Date: 07/23/2018 Sample Time: 11:20:00
% Moisture: % Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	1510		ug/L	1510		1	YES	S4VEM
Antimony	Target	336		ug/L	336		1	YES	S4VEM
Arsenic	Target	4.3		ug/L	4.3		1	YES	S4VEM
Barium	Target	52.0		ug/L	52.0		1	YES	S4VEM
Beryllium	Target	1.0	U	ug/L	0.17	J	1	YES	S4VEM
Cadmium	Target	14.0		ug/L	14.0		1	YES	S4VEM
Calcium	Target	4690	J	ug/L	4690	*	1	YES	S4VEM
Chromium	Target	14.3		ug/L	14.3		1	YES	S4VEM
Cobalt	Target	1.0	UJ	ug/L	0.74	J*	1	YES	S4VEM
Copper	Target	1490	J	ug/L	1490	D*	3	YES	S4VEM
Iron	Target	1100		ug/L	1100		1	YES	S4VEM
Lead	Target	222		ug/L	222		1	YES	S4VEM
Magnesium	Target	824		ug/L	824		1	YES	S4VEM
Manganese	Target	140		ug/L	140		1	YES	S4VEM
Nickel	Target	13.6	J	ug/L	13.6	*	1	YES	S4VEM
Potassium	Target	4730		ug/L	4730		1	YES	S4VEM
Selenium	Target	1.2	J	ug/L	1.2	J	1	YES	S4VEM
Silver	Target	8.2		ug/L	8.2		1	YES	S4VEM
Sodium	Target	78500		ug/L	78500		1	YES	S4VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Zinc	Target	253	J	ug/L	253	*	1	YES	S4VEM
Hardness	Derived	15.1	J	mg/L	15.1	*	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC1	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location: SCR	pH: 1.	Sample Date: 07/24/2018	Sample Time: 16:30:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.20	U	ug/L	0.20	U	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC1 Method: Metals by ICP-MS Matrix: Water MA Number:
Sample Location: SCR pH: 1. Sample Date: 07/24/2018 Sample Time: 16:30:00
% Moisture: % Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	55.2		ug/L	55.2		1	YES	S4VEM
Antimony	Target	2.0	U	ug/L	0.45	J	1	YES	S4VEM
Arsenic	Target	0.46	J	ug/L	0.46	J	1	YES	S4VEM
Barium	Target	171		ug/L	171		1	YES	S4VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Cadmium	Target	1.0	U	ug/L	0.040	J	1	YES	S4VEM
Calcium	Target	7630	J	ug/L	7630	*	1	YES	S4VEM
Chromium	Target	2.0	UJ	ug/L	0.11	J	1	YES	S4VEM
Cobalt	Target	3.7	J	ug/L	3.7	*	1	YES	S4VEM
Copper	Target	2.0	UJ	ug/L	1.5	J*	1	YES	S4VEM
Iron	Target	26300		ug/L	26300		1	YES	S4VEM
Lead	Target	1.0	U	ug/L	0.98	J	1	YES	S4VEM
Magnesium	Target	1910		ug/L	1910		1	YES	S4VEM
Manganese	Target	1760		ug/L	1760		1	YES	S4VEM
Nickel	Target	1.3	J	ug/L	1.3	*	1	YES	S4VEM
Potassium	Target	2800		ug/L	2800		1	YES	S4VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Silver	Target	0.087	J	ug/L	0.0087	J	1	YES	S4VEM
Sodium	Target	4600		ug/L	4600		1	YES	S4VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Zinc	Target	5.5	J	ug/L	5.5	*	1	YES	S4VEM
Hardness	Derived	26.9	J	mg/L	26.9	*	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location: L.P.B.M. HW	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:05:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.20	U	ug/L	0.20	U	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: L.P.B.M. HW	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:05:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	3.4	J	1	YES	S4VEM
Antimony	Target	2.0	U	ug/L	0.16	J	1	YES	S4VEM
Arsenic	Target	2.0	U	ug/L	2.0	UD	2	YES	S4VEM
Barium	Target	45.7		ug/L	45.7		1	YES	S4VEM
Beryllium	Target	1.0	U	ug/L	0.22	J	1	YES	S4VEM
Cadmium	Target	1.0	U	ug/L	0.35	J	1	YES	S4VEM
Calcium	Target	1610	J	ug/L	1610	*	1	YES	S4VEM
Chromium	Target	4.0	UJ	ug/L	4.0	UD	2	YES	S4VEM
Cobalt	Target	1.0	UJ	ug/L	0.019	J*	1	YES	S4VEM
Copper	Target	32.0	J	ug/L	32.0	*	1	YES	S4VEM
Iron	Target	400	U	ug/L	9.2	JD	2	YES	S4VEM
Lead	Target	1.3		ug/L	1.3		1	YES	S4VEM
Magnesium	Target	500	U	ug/L	375	J	1	YES	S4VEM
Manganese	Target	10.1		ug/L	10.1	D	2	YES	S4VEM
Nickel	Target	0.16	J	ug/L	0.16	J*	1	YES	S4VEM
Potassium	Target	1970		ug/L	1970		1	YES	S4VEM
Selenium	Target	10.0	U	ug/L	10.0	UD	2	YES	S4VEM
Silver	Target	0.015	J	ug/L	0.015	J	1	YES	S4VEM
Sodium	Target	5350		ug/L	5350		1	YES	S4VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Vanadium	Target	10.0	U	ug/L	10.0	UD	2	YES	S4VEM
Zinc	Target	29.5	J	ug/L	29.5	*	1	YES	S4VEM
Hardness	Derived	4.0	J	mg/L	5.6	*	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3D	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:05:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.20	U	ug/L	0.20	U	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3D	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:05:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	10.5	J	ug/L	10.5	J	1	YES	S4VEM
Antimony	Target	0.52	J	ug/L	0.52	J	1	YES	S4VEM
Arsenic	Target	2.0	U	ug/L	2.0	UD	2	YES	S4VEM
Barium	Target	53.1		ug/L	53.1		1	YES	S4VEM
Beryllium	Target	0.36	J	ug/L	0.36	J	1	YES	S4VEM
Cadmium	Target	0.57	J	ug/L	0.57	J	1	YES	S4VEM
Calcium	Target	1580		ug/L	1580		1	YES	S4VEM
Chromium	Target	4.0	U	ug/L	4.0	UD	2	YES	S4VEM
Cobalt	Target	1.7		ug/L	1.7	*	1	YES	S4VEM
Copper	Target	34.2		ug/L	34.2		1	YES	S4VEM
Iron	Target	5.8	J	ug/L	5.8	JD	2	YES	S4VEM
Lead	Target	1.4		ug/L	1.4		1	YES	S4VEM
Magnesium	Target	375	J	ug/L	375	J	1	YES	S4VEM
Manganese	Target	10.2		ug/L	10.2	D	2	YES	S4VEM
Nickel	Target	1.9		ug/L	1.9	*	1	YES	S4VEM
Potassium	Target	1950		ug/L	1950		1	YES	S4VEM
Selenium	Target	10.0	U	ug/L	10.0	UD	2	YES	S4VEM
Silver	Target	0.17	J	ug/L	0.17	J	1	YES	S4VEM
Sodium	Target	5310		ug/L	5310		1	YES	S4VEM
Thallium	Target	0.20	J	ug/L	0.20	J	1	YES	S4VEM
Vanadium	Target	10.0	U	ug/L	10.0	UD	2	YES	S4VEM
Zinc	Target	32.3		ug/L	32.3		1	YES	S4VEM
Hardness	Derived	5.5		mg/L	5.5		1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3L	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	100	U	ug/L	100	U	5	YES	S4VEM
Antimony	Target	10.0	U	ug/L	10.0	U	5	YES	S4VEM
Arsenic	Target	10.0	U	ug/L	10.0	UD	10	YES	S4VEM
Barium	Target	49.2	J	ug/L	49.2	J	5	YES	S4VEM
Beryllium	Target	0.45	J	ug/L	0.45	J	5	YES	S4VEM
Cadmium	Target	0.37	J	ug/L	0.37	J	5	YES	S4VEM
Calcium	Target	1820	J	ug/L	1820	J*	5	YES	S4VEM
Chromium	Target	20.0	U	ug/L	20.0	UD	10	YES	S4VEM
Cobalt	Target	0.084	J	ug/L	0.084	J	5	YES	S4VEM
Copper	Target	38.3		ug/L	38.3	*	5	YES	S4VEM
Iron	Target	2000	U	ug/L	2000	UD	10	YES	S4VEM
Lead	Target	1.4	J	ug/L	1.4	J	5	YES	S4VEM
Magnesium	Target	404	J	ug/L	404	J	5	YES	S4VEM
Manganese	Target	10.5		ug/L	10.5	D	10	YES	S4VEM
Nickel	Target	5.0	U	ug/L	5.0	U	5	YES	S4VEM
Potassium	Target	2020	J	ug/L	2020	J	5	YES	S4VEM
Selenium	Target	50.0	U	ug/L	50.0	UD	10	YES	S4VEM
Silver	Target	5.0	U	ug/L	5.0	U	5	YES	S4VEM
Sodium	Target	5660		ug/L	5660		5	YES	S4VEM
Thallium	Target	5.0	U	ug/L	5.0	U	5	YES	S4VEM
Vanadium	Target	50.0	U	ug/L	50.0	UD	10	YES	S4VEM
Zinc	Target	34.2		ug/L	34.2	*	5	YES	S4VEM
Hardness	Derived	6.2		mg/L	6.2	*	5	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3S	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:05:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Spike	1.0		ug/L	1.0		1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC3S	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:05:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	107		ug/L	107		1	YES	S4VEM
Arsenic	Spike	39.7		ug/L	39.7	D	2	YES	S4VEM
Barium	Spike	2100		ug/L	2100		1	YES	S4VEM
Beryllium	Spike	50.5		ug/L	50.5		1	YES	S4VEM
Cadmium	Spike	55.6		ug/L	55.6		1	YES	S4VEM
Chromium	Spike	205		ug/L	205	D	2	YES	S4VEM
Cobalt	Spike	456		ug/L	456		1	YES	S4VEM
Copper	Spike	275		ug/L	275		1	YES	S4VEM
Lead	Spike	21.8		ug/L	21.8		1	YES	S4VEM
Manganese	Spike	525		ug/L	525	D	2	YES	S4VEM
Nickel	Spike	486		ug/L	486		1	YES	S4VEM
Selenium	Spike	102		ug/L	102	D	2	YES	S4VEM
Silver	Spike	51.9		ug/L	51.9		1	YES	S4VEM
Thallium	Spike	52.6		ug/L	52.6		1	YES	S4VEM
Vanadium	Spike	570		ug/L	570	D	2	YES	S4VEM
Zinc	Spike	516		ug/L	516		1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
---	--------------------------------	---

Sample Number: MC0AC4	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location: L.P.B.M. HW	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:10:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.20	U	ug/L	0.20	U	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: MC0AC4	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: L.P.B.M. HW	pH: 1.	Sample Date: 07/25/2018	Sample Time: 15:10:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	3.0	J	1	YES	S4VEM
Antimony	Target	2.0	U	ug/L	0.078	J	1	YES	S4VEM
Arsenic	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Barium	Target	46.8		ug/L	46.8		1	YES	S4VEM
Beryllium	Target	1.0	U	ug/L	0.16	J	1	YES	S4VEM
Cadmium	Target	1.0	U	ug/L	0.38	J	1	YES	S4VEM
Calcium	Target	1590	J	ug/L	1590	*	1	YES	S4VEM
Chromium	Target	2.0	UJ	ug/L	2.0	U	1	YES	S4VEM
Cobalt	Target	1.0	UJ	ug/L	0.057	J*	1	YES	S4VEM
Copper	Target	44.7	J	ug/L	44.7	*	1	YES	S4VEM
Iron	Target	200	U	ug/L	8.8	J	1	YES	S4VEM
Lead	Target	1.4		ug/L	1.4		1	YES	S4VEM
Magnesium	Target	500	U	ug/L	376	J	1	YES	S4VEM
Manganese	Target	9.0		ug/L	9.0		1	YES	S4VEM
Nickel	Target	0.17	J	ug/L	0.17	J*	1	YES	S4VEM
Potassium	Target	1980		ug/L	1980		1	YES	S4VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Silver	Target	0.017	J	ug/L	0.017	J	1	YES	S4VEM
Sodium	Target	5320		ug/L	5320		1	YES	S4VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Zinc	Target	34.6	J	ug/L	34.6	*	1	YES	S4VEM
Hardness	Derived	3.9	J	mg/L	5.5	*	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
---	--------------------------------	---

Sample Number: PBW01	Method: Mercury by Cold Vapor	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.20	U	ug/L	0.20	U	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE
Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Sample Number: PBW01	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2.8	J	ug/L	2.8	J	1	YES	S4VEM
Antimony	Target	0.13	J	ug/L	0.13	J	1	YES	S4VEM
Arsenic	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Barium	Target	0.056	J	ug/L	0.056	J	1	YES	S4VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Cadmium	Target	0.039	J	ug/L	0.039	J	1	YES	S4VEM
Calcium	Target	5.4	J	ug/L	5.4	J	1	YES	S4VEM
Chromium	Target	2.0	U	ug/L	2.0	U	1	YES	S4VEM
Cobalt	Target	0.0097	J	ug/L	0.0097	J	1	YES	S4VEM
Copper	Target	0.038	J	ug/L	0.038	J	1	YES	S4VEM
Iron	Target	200	U	ug/L	200	U	1	YES	S4VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Magnesium	Target	2.4	J	ug/L	2.4	J	1	YES	S4VEM
Manganese	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Nickel	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Potassium	Target	-10	J	ug/L	-10	J	1	YES	S4VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Sodium	Target	15.5	J	ug/L	15.5	J	1	YES	S4VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S4VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S4VEM
Zinc	Target	1.4	J	ug/L	1.4	J	1	YES	S4VEM
Hardness	Derived	0.0	U	mg/L	0.0	U	1	YES	S4VEM

Sample Summary Report

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
---	--------------------------------	---

USEPA CLP COC (REGION COPY)

DateShipped: 25-Jul-18

CarrierName: FedEx

AirbillNo: 7728 1311 7053

CHAIN OF CUSTODY RECORD

Shiloh Church Road/VA

Case #: 47768

Cooler #: 01

No: 3-07-25-18-110415-0013

Lab: Bonner Analytical Testing Company

Lab Contact: [REDACTED]

Lab Phone: 601-264-2854

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
SCR-0718-SW01-00	MC0AB6	Water/ START [REDACTED])	Grab	ICP-MS(21), Dissolved Metals(21)	1149 (HNO3 to pH < 2), 1176 (HNO3 to pH < 2) (2)	SCR	07-23-2018 10:40	Field Sample
SCR-0718-SS03-0000-00	MC0AB7	Soil/ START [REDACTED])	Grab	ICP-AES(21)	1159 (None) (1)	SCR	07-25-2018 09:19	Field Sample
SCR-0718-SS01-0606-00	MC0AB8	Sediment/ START [REDACTED])	Grab	ICP-AES(21)	1166 (None) (1)	SCR	07-24-2018 16:30	Field Sample
SCR-0718-SS02-0000-00	MC0AB9	Soil/ START [REDACTED])	Grab	ICP-AES(21)	1173 (None) (1)	SCR	07-25-2018 09:05	Field Sample
SCR-0718-SW02-00	MC0AC0	Water/ START [REDACTED])	Grab	ICP-MS(21), Dissolved Metals(21)	1179 (HNO3 to pH < 2), 1185 (HNO3 to pH < 2) (2)	SCR	07-23-2018 11:20	Field Sample
SCR-0718-SW03-00	MC0AC1	Water/ START [REDACTED])	Grab	ICP-MS(21), Dissolved Metals(21)	1188 (HNO3 to pH < 2), 1194 (HNO3 to pH < 2) (2)	SCR	07-24-2018 16:30	Field Sample

Special Instructions:	Shipment for Case Complete? N
	Samples Transferred From Chain of Custody #
Analysis Key: ICP-MS=TAL Metals+Hg by ISM02.4 (ICP-MS), Dissolved Metals=Dissolved TAL Metals+Hg by ISM02.4 (ICP-MS), ICP-AES=TAL Metals+Hg by ISM02.4 ICP-AES	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA CLP COC (REGION COPY)

DateShipped: 26-Jul-18

CarrierName: FedEx

AirbillNo: 7728 2420 3973

CHAIN OF CUSTODY RECORD

Shiloh Church Road/VA

Case #: 47768

Cooler #: 05

No: 3-07-26-18-105937-0017

Lab: Bonner Analytical Testing Company

Lab Contact: [REDACTED]

Lab Phone: 601-264-2854

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
SCR-072518-RW-013	MC0AC3	Water/ START [REDACTED]	Grab	ICP-MS(21)	1207 (HNO3 to pH < 2) (1)	L.P.B.M. HW	07-25-2018 15:05	Field Sample
SCR-072518-RW-013D	MC0AC4	Water/ START [REDACTED]	Grab	ICP-MS(21)	1215 (HNO3 to pH < 2) (1)	L.P.B.M. HW	07-25-2018 15:10	Field Sample
SCR-0718-SS04-0000-00	MC0AC7	Soil/ START [REDACTED]	Grab	ICP-AES(21)	1236 (None) (1)	SCR	07-25-2018 16:35	Field Sample
SCR-0718-SS05-0000-00	MC0AC8	Soil/ START [REDACTED]	Grab	ICP-AES(21)	1243 (None), 1275 (None) (2)	SCR	07-25-2018 16:55	Field Sample
SCR-0718-SS06-0000-00	MC0AC9	Soil/ START [REDACTED]	Grab	ICP-AES(21)	1250 (None) (1)	SCR	07-26-2018 08:40	Field Sample
SCR-0718-SS07-0000-00	MC0AD0	Soil/ START [REDACTED]	Grab	ICP-AES(21)	1257 (None) (1)	SCR	07-26-2018 09:05	Field Sample
SCR-0718-SS08-0000-00	MC0AD1	Soil/ START [REDACTED]	Grab	ICP-AES(21)	1264 (None) (1)	SCR	07-26-2018 09:26	Field Sample
SCR-0718-SS04-0000-01	MC0AD2	Soil/ START [REDACTED]	Grab	ICP-AES(21)	1271 (None) (1)	SCR	07-25-2018 16:40	Field Duplicate of [M]C0AC7

Sample(s) to be used for Lab QC: SCR-0718-SS04-0000-01 Tag 1271	Shipment for Case Complete? N
	Samples Transferred From Chain of Custody #
Analysis Key: ICP-MS=TAL Metals+Hg by ISM02.4 (ICP-MS), ICP-AES=TAL Metals+Hg by ISM02.4 ICP-AES	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt



US EPA Region 3 Analytical Request (ARF) Report

CT Number: <u>CT8495</u>	Date Receipt: <u>07/12/2018</u>	Sample(s) Shipping Dates Start: <u>07/23/2018</u> End: <u>08/17/2018</u>	ARF Status: <u>IN PROGRESS</u>
--------------------------	---------------------------------	---	--------------------------------

Site: <u>SHILOH CHURCH ROAD SITE</u>	Site Activity: <u>REMOVAL ASSESSMENT (RS)</u>	Program: <u>SUPERFUND (RAS AND/OR DAS)</u>
Street: <u>Non-responsive based on revised scope SHILOH CHURCH ROAD</u>	City: <u>NATHALIE</u>	State: <u>VA</u> Zip: <u>24577</u>
Account No: <u>2018-T-03-N-303DC6-A38Q-RS-00</u>	SPILL ID: <u>A38Q</u>	OPERABLE UNIT: <u>00</u> EPA ID (aka CERCLIS):

QA Title:	QA Date Approved:
-----------	-------------------

EPA Project Lead:	CHRIS WAGNER	Phone: 804-698-4164	Cell Phone #: - -	E-mail: WAGNER.CHRISTINE@EPA.GOV
Site Leader:	Non-responsive based on revised scope	Phone: Non-responsive based on rev	Cell Phone #: Non-responsive based on rev	E-mail: Non-responsive based on revised scope
Request Preparer:	Non-responsive based on revised scope	Phone: Non-responsive based on rev	Cell Phone #: Non-responsive based on rev	E-mail: Non-responsive based on revised scope
Contractor:	WESTON SOLUTIONS	EPA CO/PO: RYAN PARKER	Equivalent method substitution allowed: <u>YES</u>	

Special Instructions: WATER SAMPLES WILL INCLUDE BOTH GROUNDWATER AND SURFACE WATER SAMPLES
SAMPLING WILL BE SPLIT INTO TWO DIFFERENT WEEKS, SOIL/SEDIMENT SAMPLING, ASSOCIATED QC SAMPLING, AND SURFACE WATER SAMPLING IS SCHEDULED FOR THE WEEK OF JULY 23 GROUNDWATER SAMPLING AND POTENTIALLY ANY REMAINING SURFACE WATER SAMPLING IS SCHEDULED FOR THE WEEK OF AUGUST 13

Comments:

DAS	RAS	Lab Assigned	QTY	Matrix	Parameter	Requested Method	Accepted Method	Validation Level	Unvalidated Data Due	Final Report Due	EDD Required
	47768	CHM	50	SOIL/SEDIMENT	VOLATILE ORGANIC COMPOUNDS (VOC)	SOM02 4 (LOW/MID)	SOM02 4 (LOW/MID)	M3	21	45	Y
	47768	CHEM	50	SOIL/SEDIMENT	SEMIVOLATILES (SVOCs)	SOM02 4	SOM02 4	M3	21	45	Y
	47768	CHEM	50	SOIL/SEDIMENT	PCB AROCLORS	SOM02 4	SOM02 4	M3	21	45	Y
	47768	BON	50	SOIL/SEDIMENT	METALS (TOTAL)	ISM02 4 ICP-AES	ISM02 4 ICP-AES	IM2	21	45	Y
	47768	CHEM	9	WATER	VOLATILE ORGANIC COMPOUNDS (VOC)	SOM02 4 (LOW/MID)	SOM02 4 (LOW/MID)	M3	21	45	Y
	47768	CHEM	9	WATER	SEMIVOLATILES (SVOCs)	SOM02 4	SOM02 4	M3	21	45	Y
	47768	CHEM	9	WATER	PCB AROCLORS	SOM02 4	SOM02 4	M3	21	45	Y
	47768	BON	9	WATER	METALS (TOTAL)	ISM02 4 ICP-AES	ISM02 4 ICP-AES	IM2	21	45	Y
	47768	BON	9	WATER	MERCURY (TOTAL)	ISM02 4	ISM02 4	IM2	21	45	Y
	47768	CHEM	8	DRINKING WATER	VOLATILE ORGANIC COMPOUNDS (VOC) TRACE	SOM02 4 (TRACE)	SOM02 4 (TRACE)	M3	21	45	Y



US EPA Region 3 Analytical Request (ARF) Report

CT Number: <u>CT8495</u>	Date Receipt: <u>07/12/2018</u>	<u>Sample(s) Shipping Dates</u> Start: <u>07/23/2018</u> End: <u>08/17/2018</u>	ARF Status: <u>IN PROGRESS</u>
--------------------------	---------------------------------	--	--------------------------------

DAS	RAS	Lab Assigned	QTY	Matrix	Parameter	Requested Method	Accepted Method	Validation Level	Unvalidated Data Due	Final Report Due	EDD Required
	47768	CHEM	8	DRINKING WATER	SEMIVOLATILES (SVOCS)	SOM02 4	SOM02 4	M3	21	45	Y
	47768	CHEM	8	DRINKING WATER	PCB AROCLORS	SOM02 4	SOM02 4	M3	21	45	Y
	47768	BON	8	DRINKING WATER	METALS (TOTAL)	ISM02 4 ICP-MS	ISM02 4 ICP-MS	IM2	21	45	Y
	47768	BON	8	DRINKING WATER	MERCURY (TOTAL)	ISM02 4	ISM02 4	IM2	21	45	Y
	47768	CHEM	9	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	VOLATILE ORGANIC COMPOUNDS (VOC) TRACE	SOM02 4 (TRACE)	SOM02 4 (TRACE)	M3	21	45	Y
	47768	CHEM	5	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	SEMIVOLATILES (SVOCS)	SOM02 4	SOM02 4	M3	21	45	Y
	47768	CHEM	5	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	PCB AROCLORS	SOM02 4	SOM02 4	M3	21	45	Y
	47768	BON	5	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	METALS (TOTAL)	ISM02 4 ICP-AES	ISM02 4 ICP-AES	IM2	21	45	Y
	47768	BON	5	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	MERCURY (TOTAL)	ISM02 4	ISM02 4	IM2	21	45	Y
	47768	BON	9	WATER	METALS (DISSOLVED)	ISM02 4 ICP-AES	ISM02 4 ICP-AES	IM2	21	45	Y
	47768	BON	9	WATER	MERCURY (DISSOLVED)	ISM02 4	ISM02 4	IM2	21	45	Y
	47768	BON	5	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	METALS (DISSOLVED)	ISM02 4 ICP-AES	ISM02 4 ICP-AES	IM2	21	45	Y
	47768	BON	5	QC BLANKS(FIELD, EQUIP, TRIP, RIN)	MERCURY (DISSOLVED)	ISM02 4	ISM02 4	IM2	21	45	Y
	47768	BON	50	SOIL/SEDIMENT	MERCURY (TOTAL)	ISM02 4	ISM02 4	IM2	21	45	Y

Data Validation Report
Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

HoldingTimes_Preservation

NONE FOUND

Accurate

Data Validation Report
Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

TUNE

NONE FOUND

Accurate

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

InitialCalibration

NONE FOUND

Accurate

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

ContinuingCalibrationVerification

NONE FOUND

Accurate

Data Validation Report
Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

InitialCalibrationVerification

NONE FOUND

Accurate

Data Review Results

Thu, 16
Aug
2018
15:20:20

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

Blanks

Method - Metals by ICP-MS

Test Name: EXES-1342

Defect Message: The following samples have analyte results less than or equal to CRQLs. The associated CCB analyte results are less than or equal to CRQLs. **Detects are qualified as U. Sample results are reported at CRQLs.**

Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Aluminum	MC0AC3, MC0AC4
Antimony	MC0AC1, MC0AC3, MC0AC4
Beryllium	MC0AB6, MC0AC0, MC0AC3, MC0AC4
Cadmium	MC0AC1, MC0AC3, MC0AC4
Cobalt	MC0AC0, MC0AC3, MC0AC4
Iron	MC0AC3[Dilution-01], MC0AC4
Lead	MC0AC1
Magnesium	MC0AC3, MC0AC4

Test Name: EXES-476

Defect Message: The following samples have analyte results less than or equal to CRQLs. The associated ICB analyte results are less than or equal to CRQLs. **Detects are qualified as U. Sample results are reported at CRQLs. Data not qualified due to ICBs**

Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Antimony	MC0AC1, MC0AC3, MC0AC4
Cadmium	MC0AC1, MC0AC3, MC0AC4
Cobalt	MC0AC0, MC0AC3, MC0AC4
Lead	MC0AC1
Magnesium	MC0AC3, MC0AC4
Silver	MC0AB6, MC0AC1, MC0AC3, MC0AC4

Data Review Results

Thu, 16
Aug
2018
15:20:20

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

Test Name: EXES-478

Defect Message: The following samples have analyte results greater than CRQLs. The associated ICB analyte results are less than or equal to CRQLs. Use Professional Judgement to qualify detects. **Data not qualified due to ICBs**

Associated Samples: LCS01, MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC3S, MC0AC4

Defective Analyte	Defective Samples/Analyses
Antimony	LCS01, MC0AB6, MC0AC0, MC0AC3S
Cadmium	LCS01, MC0AB6, MC0AC0, MC0AC3S
Cobalt	LCS01, MC0AB6[Dilution-01], MC0AC1, MC0AC3D, MC0AC3S
Lead	LCS01, MC0AB6, MC0AC0, MC0AC3, MC0AC3D, MC0AC3S, MC0AC4
Magnesium	LCS01, MC0AB6, MC0AC0, MC0AC1
Silver	LCS01, MC0AC0, MC0AC3S
Sodium	LCS01, MC0AB6[Dilution-02], MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC4

Test Name: EXES-479

Defect Message: The following samples have analyte results greater than CRQLs. The associated CCB analyte results are less than or equal to CRQLs. Use Professional Judgement to qualify detects. **No Impact, Lab QC not qualified by validator**

Associated Samples: LCS01, MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC3S, MC0AC4

Defective Analyte	Defective Samples/Analyses
Aluminum	LCS01, MC0AB6, MC0AC0, MC0AC1
Antimony	LCS01, MC0AB6, MC0AC0, MC0AC3S
Barium	LCS01, MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3S, MC0AC4
Beryllium	LCS01, MC0AC3S
Cadmium	LCS01, MC0AB6, MC0AC0, MC0AC3S
Calcium	LCS01, MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC4
Cobalt	LCS01, MC0AB6[Dilution-01], MC0AC1, MC0AC3D, MC0AC3S
Iron	LCS01, MC0AB6[Dilution-01], MC0AC0, MC0AC1
Lead	LCS01, MC0AB6, MC0AC0, MC0AC3, MC0AC3D, MC0AC3S, MC0AC4
Magnesium	LCS01, MC0AB6, MC0AC0, MC0AC1
Manganese	LCS01, MC0AB6[Dilution-01], MC0AC0, MC0AC1, MC0AC3[Dilution-01], MC0AC3D[Dilution-01], MC0AC3L[Dilution-01], MC0AC3S[Dilution-01], MC0AC4
Potassium	LCS01, MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC4
Sodium	LCS01, MC0AB6[Dilution-02], MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC4
Thallium	LCS01, MC0AC3S
Zinc	LCS01, MC0AB6[Dilution-01], MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC3S, MC0AC4

Data Review Results

Thu, 16
Aug
2018
15:20:20

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

Test Name: EXES-480

Defect Message: The following samples are associated with CCB that has analyte results less than or equal to (-MDLs) but greater than or equal to (-CRQLs). Use Professional Judgement to qualify detects and nondetects. **Detects <CRQL reported at CRQL and UJ, nondetects UJ**

Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Chromium	MC0AB6[Dilution-01], MC0AC0, MC0AC1, MC0AC3[Dilution-01], MC0AC4

Test Name: EXES-481

Defect Message: The following samples are associated with ICB that has analyte results less than or equal to (-MDLs) but greater than or equal to (-CRQLs). Use Professional Judgement to qualify detects and nondetects. **Data not qualified due to ICBs**

Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Potassium	MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Test Name: EXES-506

Defect Message: The following samples have analyte results less than or equal to CRQLs. The associated PB analyte results are less than or equal to CRQLs. **Detects are qualified as U. Sample results are reported at CRQLs.**

Associated Samples: MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Aluminum	MC0AC3, MC0AC4
Antimony	MC0AC1, MC0AC3, MC0AC4
Cadmium	MC0AC1, MC0AC3, MC0AC4
Cobalt	MC0AC0, MC0AC3, MC0AC4
Copper	MC0AC1
Magnesium	MC0AC3, MC0AC4

Test Name: EXES-508

Defect Message: The following samples have analyte results greater than CRQLs. The associated PB analyte results are less than or equal to CRQLs. Use Professional Judgement to qualify detects. **No Impact**

Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Aluminum	MC0AB6, MC0AC0, MC0AC1
Antimony	MC0AB6, MC0AC0

Data Review Results

Thu, 16
Aug
2018
15:20:20

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

Test Name: EXES-508**Defect Message:** The following samples have analyte results greater than CRQLs. The associated PB analyte results are less than or equal to CRQLs. Use Professional Judgement to qualify detects. **No Impact****Associated Samples:** MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Barium	MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4
Cadmium	MC0AB6, MC0AC0
Calcium	MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4
Cobalt	MC0AB6[Dilution-01], MC0AC1
Copper	MC0AB6[Dilution-01], MC0AC0[Dilution-01], MC0AC3, MC0AC4
Magnesium	MC0AB6, MC0AC0, MC0AC1
Sodium	MC0AB6[Dilution-02], MC0AC0, MC0AC1, MC0AC3, MC0AC4
Zinc	MC0AB6[Dilution-01], MC0AC0, MC0AC1, MC0AC3, MC0AC4

Test Name: EXES-549**Defect Message:** The following samples are associated with PB that has analyte results less than or equal to (-MDL) but greater than or equal to (-CRQL). Use Professional Judgement to qualify detects and nondetects. **No Impact****Associated Samples:** MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Defective Analyte	Defective Samples/Analyses
Potassium	MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

InterferenceCheckSample

NONE FOUND

Accurate

Data Validation Report
Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

LaboratoryControlSample

NONE FOUND

Accurate

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

MatrixSpikes

NONE FOUND

Accurate

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

SerialDilution

Method - Metals by ICP-MS

Test Name: EXES-1334	
Defect Message: The following samples are associated to the Serial Dilution sample with analyte %D >10% and the original sample result is > 50xMDL. Detects are qualified as estimated J. Non-detects are qualified estimated UJ.	
Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4	
Defective Analyte	Defective Samples/Analyses
Calcium	MC0AC3L
Copper	MC0AC3L
Zinc	MC0AC3L
Hardness	MC0AC3L

Data Review Results

Thu, 16
Aug
2018
15:20:20

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

InternalStandard

NONE FOUND

Percent relative intensities for internal standards in both collision cell and non-collision cell analyses were outside the upper control limit (>125%) in the initial analysis of the samples listed below. These samples were reanalyzed at two-fold (2X) dilutions with %RI within control limits for all internal standards. The associated analytes were reported from the diluted analyses, without qualification. Quantitation limits are elevated due to the dilutions.

Sample	Analysis	Internal standard(s)	Associated Analytes
MC0AB6	Collision cell	scandium, yttrium	Arsenic (As), chromium (Cr), iron (Fe), manganese (Mn), selenium (Se), vanadium (V)
MC0AC3	Collision cell	scandium	As, Cr, Fe, Mn, Se, V
MC0AB6	Non-collision cell	Yttrium	Cobalt (Co), copper (Cu), nickel (Ni), zinc (Zn)

Data Review Results

Thu, 16
Aug
2018
15:20:20

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

TargetAnalyteQuantitation

Method - Metals by ICP-MS

Test Name: EXES-790

Defect Message: The following samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J.

Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC4, PBW01

Defective Analyte	Defective Samples/Analyses
Aluminum	MC0AC3, MC0AC3D, MC0AC4, PBW01
Antimony	MC0AC1, MC0AC3, MC0AC3D, MC0AC4, PBW01
Arsenic	MC0AC1
Barium	MC0AC3L, PBW01
Beryllium	MC0AB6, MC0AC0, MC0AC3, MC0AC3D, MC0AC3L, MC0AC4
Cadmium	MC0AC1, MC0AC3, MC0AC3D, MC0AC3L, MC0AC4, PBW01
Calcium	MC0AC3L, PBW01
Chromium	MC0AC1
Cobalt	MC0AC0, MC0AC3, MC0AC3L, MC0AC4, PBW01
Copper	MC0AC1, PBW01
Iron	MC0AC3[Dilution-01], MC0AC3D[Dilution-01], MC0AC4
Lead	MC0AC1, MC0AC3L
Magnesium	MC0AC3, MC0AC3D, MC0AC3L, MC0AC4, PBW01
Nickel	MC0AC3, MC0AC4
Potassium	MC0AC3L, PBW01
Selenium	MC0AB6[Dilution-01], MC0AC0
Silver	MC0AB6, MC0AC1, MC0AC3, MC0AC3D, MC0AC4
Sodium	PBW01
Thallium	MC0AC3D
Zinc	PBW01

Accurate

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project	GroupID: 47768/EPW14029/MC0X12	Lab Name: Bonner Analytical Testing Co.
Submission Group Id: 30411841	Organization: EPA Region 3	SOW: ISM02.4

Duplicates

Method - Metals by ICP-MS

Test Name: EXES-607	
Defect Message: The following samples are associated with a Duplicate sample that has analyte results less than 5xCRQL in Duplicate and the absolute difference between analyte results in the Duplicate and original samples are greater than CRQLs. Detects are qualified as J. Nondetects are qualified as UJ.	
Associated Samples: MC0AB6, MC0AC0, MC0AC1, MC0AC3, MC0AC4	
Defective Analyte	Defective Samples/Analyses
Cobalt	MC0AC3D
Nickel	MC0AC3D

Data Validation Report

Data Review Results

Project Name: SHILO CHURCH ROAD SITE Project

GroupID: 47768/EPW14029/MC0X12

Lab Name: Bonner Analytical Testing Co.

Submission Group Id: 30411841

Organization: EPA Region 3

SOW: ISM02.4

SampleAnalysis

NONE FOUND

Accurate